

**PROCEEDINGS
OF THE
SEMINAR FOR ARABIAN STUDIES**

**VOLUME 40
2010**

Papers from the forty-third meeting of the
Seminar for Arabian Studies
held at the British Museum, London,
23–25 July 2009

SEMINAR FOR ARABIAN STUDIES

**ARCHAEOPRESS
OXFORD**

Orders for copies of this volume of the *Proceedings* and of all back numbers should be sent to Archaeopress, Gordon House, 276 Banbury Road, Oxford OX2 7ED, UK.

Tel/Fax +44-(0)1865-311914.

e-mail bar@archaeopress.com

<http://www.archaeopress.com>

For the availability of back issues see the Seminar's web site: www.arabianseminar.org.uk

Seminar for Arabian Studies

c/o the Department of the Middle East, The British Museum

London, WC1B 3DG, United Kingdom

e-mail seminar.arab@durham.ac.uk

The Steering Committee of the Seminar for Arabian Studies is currently made up of 13 members. The Editorial Committee of the *Proceedings of the Seminar for Arabian Studies* includes 6 additional members as follows:

STEERING COMMITTEE

Dr Robert Carter (Chair)
Dr Mark Beech
Dr Nadia Durrani
Dr Robert G. Hoyland
Dr Derek Kennet
Mr Michael C.A. Macdonald
Dr Ardle MacMahon (Secretary)
Dr Venetia Porter
Dr St John Simpson
Mrs Janet C.M. Starkey (Editor)
Mr Andrew Thompson (Treasurer)
Professor Janet Watson
Dr Lloyd Weeks

EDITORIAL COMMITTEE: ADDITIONAL MEMBERS

Professor Alessandra Avanzini
Dr Ricardo Eichmann
Professor Clive Holes
Professor Khaleel Al-Muaikeel
Professor Dan Potts
Professor Christian Robin

Opinions expressed in papers published in the *Proceedings* are those of the authors and are not necessarily shared by the Editorial Committee.

Typesetting, Layout and Production: Dr David Milson

The *Proceedings* is produced in the Times Semitic New font, which was designed by Paul Bibire for the Seminar for Arabian Studies.

© 2010 Archaeopress, Oxford, UK.

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior permission of the publisher.

ISSN 0308-8421

ISBN 978-1-905739-33-2

The dhow's last redoubt? Vestiges of wooden boatbuilding traditions in Yemen

DIONISIUS A. AGIUS, JOHN P. COOPER, CHIARA ZAZZARO & JULIAN JANSEN VAN RENSBURG

Summary

Researchers from the MARES Project visited Yemen in February 2009 in order to investigate the building and use of traditional wooden boats (“dhows” in English) in the country. The survey covered the coastline from Aden to al-Salif in the Red Sea, and visited centres of dhow building and use, including Ghurayrah (Ghureira), al-Mukhā (Mocha), and al-Khawkhah (Khokha). The project’s aim was to assess the state of the industry, establish a vessel typology, understand construction processes, learn about the use of these vessels, and compile a lexicon of boatbuilding and nautical terms. This article offers the preliminary findings of the survey, pending more comprehensive publication in the future. The survey found that, in all locations visited, the building of new vessels had rapidly diminished in the preceding decade, and has now all but ceased. The only ongoing activity witnessed during the survey was repairs to existing wooden craft. In formerly large boatbuilding centres, builders of wooden boats, mostly elderly, have ceased work, while younger men were building fishing craft using fibreglass — the material used in the great majority of vessels in Yemen today. A preliminary typology of surviving vessels was established. The double-ended cargo-carrying *za‘āyim* (sg. *zā‘īmah*) and *zawārik* (sg. *zārūk*) were recorded only as abandoned hulks. Double-ended ‘*abārī*’ (sg. ‘*obrī*’) and the transom-sterned “large *hūrī*” (pl. *hawārī*), with its stern-quarter “fins”, continued to be used in small numbers for seine fishing and transporting livestock. Again, most examples were abandoned. Various forms of small log and plank *hūrī* “canoes” were observed, few still in use, while the log-raft *ramas* survives on the Red Sea coast. The terms used for these vessel types form part of a linguistic survey of dhow activity in Yemen.

Keywords: Yemen, dhow typology, boatbuilding, maritime, ethnography

Introduction

The wooden dhow-building traditions of Arabia have suffered a series of blows since the mid-twentieth century, not least with the end of pearling in the Arabian-Persian Gulf, and the onset of oil-driven economic development. In the oil states, in particular, traditional ways of life have been set aside, and on the maritime front, boatyards and harbours have been subsumed under rapid urban and industrial development. Between 1990 and 2000, Agius (2002; 2005; 2008) investigated boat typologies, boatbuilding practices, and maritime traditions of the Gulf States and Oman, but most of these traditions have since been swept aside. Dhow building has survived longest in areas least affected by the oil boom, namely coastal Yemen. Even here, however, the practice of building a variety of wooden boats for fishing and transportation is coming to a rapid end. Even a decade ago wooden boatbuilding was thriving, but boatbuilders have now abandoned constructing wooden boats entirely, as fibreglass boatbuilding takes over.

The MARES Project is currently investigating surviving wooden boatbuilding traditions in the Gulf of Aden and southern Red Sea. The work is, in some respects, a continuation of Agius’s previous ethnographic work in the Arabian-Persian Gulf and Oman, while an expanded team enables a more diverse methodological approach, including the systematic survey of boat distribution, architecture, and construction methods.

The fieldwork

Field research was carried out along the Gulf of Aden and Red Sea coasts of the Republic of Yemen over a three-week period in February 2009. Yemen was chosen in part because the country was a region not yet covered by Agius’s research, and also in the knowledge, based on previous fieldwork along parts of the Yemeni coast in 2007,¹ that large wooden vessels and residual boatbuilding activities were extant.

¹ This work, a survey of *hūrī* (pl. *hawārī*) fishing canoes, was conducted as part of the University of Southampton Huri Project, directed by Dr Lucy Blue, in which Cooper participated.

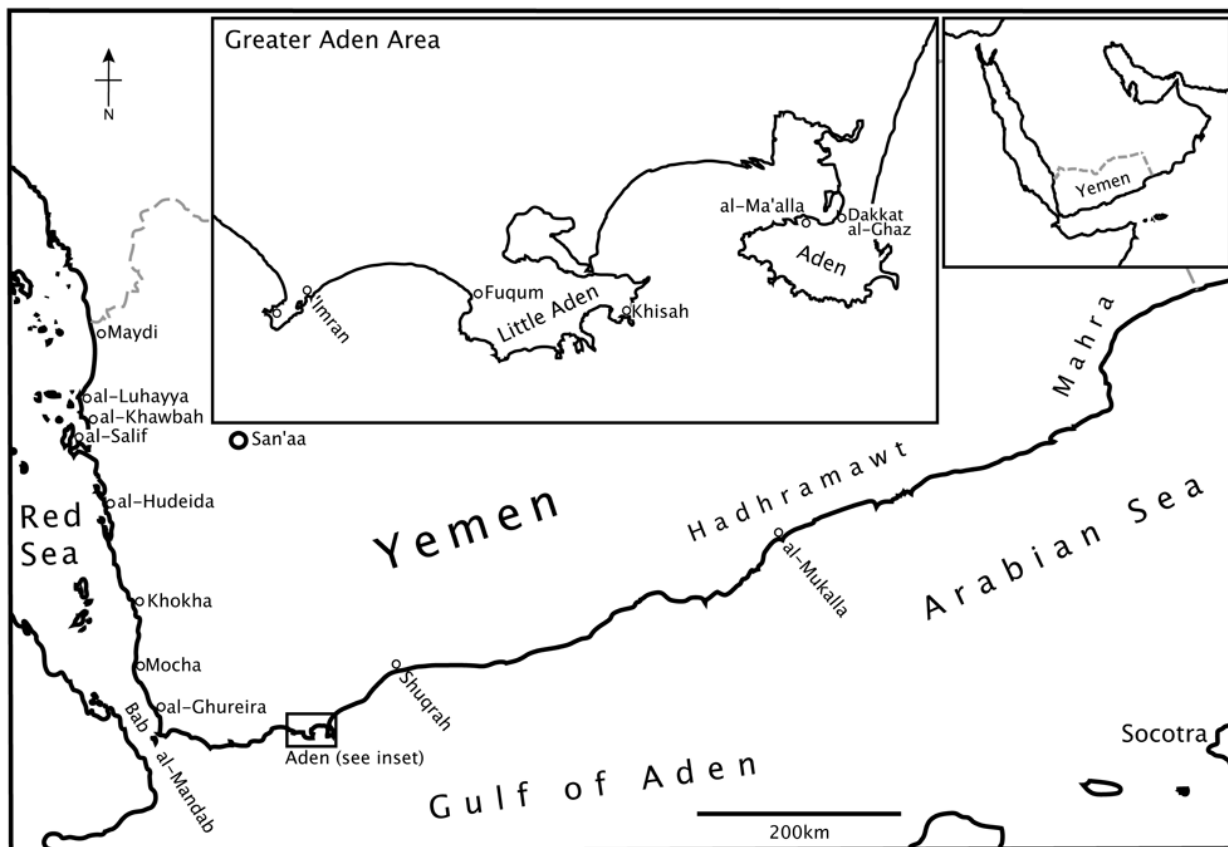


FIGURE 1. A map of Yemen, showing the sites discussed in the text (MARES/J.P. Cooper).

Yemen's rich natural fisheries support a large and growing fishing population. Indeed, the Yemeni government regards the industry as an important component in Yemen's future economic development. However, growth in population and fishing is putting pressure on marine reserves, a situation that has contributed to Yemen's shift away from wooden boatbuilding and towards fibreglass manufacture. Meanwhile, the use of traditional cargo "dhows" has diminished sharply amid competition from modern freighters and land and air transport, as well as the effects of changing trade patterns. The few remaining cargo vessels in use in Yemen are largely used to transport livestock and foodstuffs, as well as contraband and refugees from the African coast. In the mid-90s, Prados (1998a: 195) was able to say that, "... wooden boatbuilding ... remains an integral and essential part of everyday commerce." This is no longer the case. Such a decline argues for detailed documentation of traditional boats and ethnographic interviews of the

people who built and operated them before both disappear. Yemen's scarce fiscal resources, particularly for cultural programmes, mean that the chances of these boats being preserved in any other way are slim indeed.

Given the relatively limited time available, the MARES survey could cover only part of Yemen's 1900 km coastline. For reasons of insurance limitations and ease of access the survey concentrated on the section of the Gulf of Aden and the Red Sea coast between Aden and al-Salif — a section of coastline that was known to include sites containing vestiges of wooden boats and boatbuilding (Fig. 1). While the main survey continued on the Yemeni mainland, Julian Jansen van Rensburg pursued research into traditional vessels on the island of Socotra.

The Survey began in Aden, and in particular in the part of Ma'allah (today called Dakkat al-Ghāz), which was formerly Aden's dhow harbour. It also took in Little Aden and especially the fishing villages of *Khīṣah* and *Fuqum*.

The survey then headed west, passing through ʿImrān, and along a largely empty and exposed coast to the Bāb al-Mandab. From there it proceeded north up the Red Sea coast, taking in the village of Ghurayrah (Ghureira) and its eponymous creek, the former coffee port of al-Mukhā (Mocha), the fishing and former boatbuilding town of al-Khawkhah (Khokha), the city of al-Ḥudaydah (Hudeida), and finally the fishing town of al-Salīf.

Methodology

The fieldwork aimed to survey the distribution of traditional vessels; to observe and record the vessel types found; to investigate construction techniques; and to assess the state of traditional boatbuilding and usage by location. Equally, a linguistic survey aimed to gather terms for the various boat types and parts, as well as the broader material culture and activities associated with them. This was achieved through direct observation and survey techniques — note taking, photography, sketching, and scale drawing — as well as through ethnographic interview.

At each site, the team surveyed the vessels present. At minimum, this involved photography and the noting of basic features. In some cases, the team took the principal measurements, such as the maximum length, height, and width amidships of the relevant vessels. For selected vessels, the team endeavoured to make line drawings of the hull, and in one case — an incomplete and abandoned “large *hūrī*” (pl. *hawārī*, see below) — the team recorded the fine detail of the hull construction. The team also collected wood samples from different elements of various vessels in order to establish the type and provenance of the timbers used in boat construction, and to corroborate the contributions obtained from ethnographic interviewees.

At each site, the team sought out local boatbuilders and mariners. Interviews were conducted in Arabic, and were open, rather than being based on a questionnaire, since it was believed that a more formalized approach might deter informants or impose an agenda. In fact, interviewees were found to be almost always amenable to interview. Team members took field notes of interviews, made rough sketches, and voice-recorded interviewees where appropriate. In addition, digital video recording was used to document boat repair and maintenance activity where this continued.

One approach to handling this diverse data has been to create a computer database comprising photographs, measurements, terminologies, and field observations of



FIGURE 2. Relics of dhow building at Dakkat al-Ghāz, Aden (MARES/J.P. Cooper).

the individual vessels recorded in Yemen. This database will allow the team to manage and interpret the data, while creating a legacy for future researchers. In addition to the data collected through fieldwork in Yemen, the MARES team has also initiated a survey of archival resources, investigating in particular photographic archives and models held by museums and private individuals in the hope of better understanding the recent history of vessel typologies in Yemen. These results will be published in the final field report.

Preliminary outcomes

The fieldwork yielded preliminary insights into the state of wooden boatbuilding and use at various locations in Yemen, a typology of the main dhow types to be found at those sites, and a lexical dataset related to those types. An overview of these findings is presented here.



FIGURE 3. *The creek at Ghurayrah, with abandoned vessels (MARES/J.P. Cooper).*

1. Boatbuilding activity and boat use

The MARES survey indicated a wide variation in activity between the major boatbuilding sites visited:

Aden and environs

A thriving hub of the British imperial maritime network, the port of Aden went into decline following independence in 1967. The remains of the traditional dhow harbour and boatyard can be found at Dakkat al-Ghāz (Fig. 2). However, much of the inter-tidal area that constituted the harbour has been reclaimed, and is now a lorry park. This appears to have happened after 1990, when Cooper visited Ma‘allah and photographed the site. Wooden boat activity is today limited. The team recorded two wooden dhows — an ‘*obrī* (pl. ‘*abārī*) and a *bōt* (pl. *abwāt*) (see below for a discussion of boat typologies) — that had been hauled out and abandoned. A pile of wooden masts was also recorded. Local informants said that a large quantity of undressed timber at the site comprised locally grown woods known as *damas* (*Conocarpus lancifolius* Engl [Bilaidi 1978: 3]) and *muraymira* (*Melia azaderach* L. [Awadh Ali *et al.* 2001: 175]). These timbers formed natural crooks used to make futtock and floor timbers, and are indicative of an extensive former boatbuilding industry at the site.

The small modern dock at Dakkat al-Ghāz is still used by occasional traditional vessels: a moored ‘*obrī* at the time of our visit was from al-Khawkhah, and vessels sometimes bring livestock to Dakkat al-Ghāz from Somalia.² The few other vessels in Ma‘allah were fibreglass. Across the harbour, dhows could also be

seen abandoned on the inaccessible island of Qulfatayn. Other abandoned examples of ‘*abārī* and large *hawārī* were recorded at the Little Aden villages of Fuqum and al-Khaysah (Khīṣah). In addition, small wooden dugout and plank “canoes” (also called *hawārī*) were observed abandoned, and occasionally still in use, at various fishing settlements in greater Aden.

Ghurayrah

The lagoon at Ghurayrah, some 5 km north of the Bāb al-Mandab on the Red Sea coast, contained a remarkable assemblage of dhow types. To its north lies the associated fishing and former shipbuilding village, where a vessel was seen under construction as recently as 2007, as observed by Blue and Cooper. The lagoon’s southern shore contained an assemblage of thirteen large cargo vessels including double-ended *zawārīk* (sg. *zārūk*),³ *zā‘āyim* (sg. *zā‘īmah*), and ‘*abārī*, and a large transom vessel of unknown type, almost all of which were clearly abandoned and in a highly dilapidated state (Fig. 3). These were interspersed with a number of large *hawārī*, some still in use. On the north bank of the lagoon, fringing the village, a number of other vessels, mostly large *hawārī*, were also hauled up. The village’s boatbuilding yard stood idle, in it an incomplete ‘*obrī* that had been abandoned early in the construction process.

Mocha

Evidence of wooden boats at Mocha was limited to four large *hūrī* vessels abandoned on the beach of the town’s

² Blue and Cooper observed such a vessel at Dakkat al-Ghāz in 2007.

³ Or *zāwārīq* (sg. *zārūq*) final “k”, a voiceless velar stop, and “q”, a uvular occlusive, are often interchangeable.



FIGURE 4. An abandoned boatyard in al-Khawkhah (MARES/J.P. Cooper).

southern bay; a number of dugout *hawārī*, none of which appeared to be still in use; and various ships' timbers incorporated into beach huts. There was no wooden boatbuilding yard remaining in the town. Fibreglass boats dominated the fishing fleet.

Al-Khawkhah

Further north, the town of al-Khawkhah contained the largest number of wooden vessels found anywhere on our itinerary — over 100 in total. The overwhelming majority of completed vessels were large *hawārī*. However, all but one, which was anchored offshore, had been hauled up and abandoned, or at least “mothballed”, on the shores of the town's lagoon. Small fishing vessels at al-Khawkhah included a number of abandoned dugout *hawārī* and the lashed log-rafts (known as *ramas* in the singular, the plural form probably being *ramasāt*), the latter being used for inshore reef fishing. Most working boats were open fibreglass fishing “canoes”.

Wooden boatbuilding had ceased at al-Khawkhah within the last decade, and the presence of several vessels abandoned in mid-construction suggests that the process happened rapidly (Fig. 4). Prados in the mid-90s had observed over sixty boats under construction in the town during his fieldwork: he described it as Yemen's largest boatbuilding centre (1996: 51).

There were two centres of former wooden boatbuilding activity. The smaller of the two, south of the fish market, comprised at least three boatyards containing four large *hawārī* and an *ʿobrī* that had been abandoned during construction. One former boatbuilder said he had not built a wooden vessel there in eight years. Instead, younger men were building fibreglass fishing boats in the same location.

Some 1.5 km up the coast from the fish market was a second, larger, boatyard site. There were at least eight individual yards, each comprising a small concrete hut and open shelter, alongside the boatbuilding area. Once again, the team observed a large number of unfinished boats — *hawārī* and an *ʿobrī* — that had been abandoned at different stages of construction. There was no evidence of ongoing construction or repair anywhere in the town.

Ḥudaydah

Ḥudaydah is Yemen's largest Red Sea port. Wooden boat construction and use appears in recent years to have been concentrated on the modern fishing harbour and market. The marina in the northern part of the market site contained dozens of fibreglass fishing vessels, and a small number — less than ten — of double-ended *ʿabārī* still in use as fishing vessels. The area south of the main market buildings comprised a “graveyard” of some seventy abandoned wooden vessels, chiefly large *hawārī* and *ʿabārī*, and one *bōt*. A group of men was breaking up one of these vessels for wood to produce charcoal.

Within the central cluster of buildings at the site was a surviving and active boatyard and ships' chandlers, the latter selling boatbuilding supplies including planking and hull preservatives. The former was the only boatyard in the survey where structural work on traditional boats was under way during the survey. The team observed a rudder being repaired, hull planking being replaced and caulked, and hull preservative being applied — all to an *ʿobrī*. Another *ʿobrī*, newly refurbished, was being prepared for launch. However the master builder overseeing the work said that no new vessels had been built at the site for some years.

al-Salīf

The most northerly site visited during the survey, al-Salīf is a relatively large fishing village located alongside an oil-exporting terminal. The bays around the village contained numerous wooden fishing *ʿabārī* and large *hawārī* that were still in use — indeed this was by far the largest number of wooden vessels still in use anywhere in the survey area. However, as elsewhere on the survey route, the local boatbuilding yard had been abandoned, with three vessels — a *zārūk* and two large *hawārī* — abandoned and unfinished. The family associated with the yard said that they continued to carry out repairs, but that new boats were not being built. An old boat was being broken up for its timber.



FIGURE 5. Three types of double-ended sanbūq found in Yemen — the ʿobrī (top) in Aden, and the zārūq (centre) and zāʿīmah (bottom), in Ghurayrah (MARES/J.P. Cooper, C. Zazzaro).

As elsewhere, fibreglass boat construction had started in al-Salīf, but here fibreglass construction followed a practice not observed elsewhere. In al-Khawkhah and the Ḥaḍramawt, for example, fibreglass boatyards specialize in the production of the familiar “canoe”-type fishing boats with an outboard motor seen throughout the Yemen coast. However, fibreglass boats seen under construction at the al-Salīf fishing association building were clearly modelled on the double-ended wooden ʿobrī, and used an inboard motor.

Socotra

Due its isolated position, Socotra has until recently retained many dugout *hawārī*. Other traditional vessels found on the island include a sewn planked vessel known as a *shirkah* (Socotran Arabic), all surviving examples of which are abandoned, as well as a number of planked vessels from Oman and elsewhere that have been brought to the island and abandoned. However, it is the log-



FIGURE 6. A bōt at Ḥudaydah (MARES/J.P. Cooper).

boat *hūrī* that has been the primary means of accessing the rich fishing grounds around the island. The log-boat *hawārī* of Socotra, like those on the mainland, originate in India (Jansen van Rensburg 2005a; 2005b; 2006; 2009). However modifications and repairs are undertaken locally by fishermen using an array of techniques, including sewing, to prevent further splitting of the hull. This technique was also used previously to maintain the *shirkah*. With the gradual increase in the import of fibreglass vessels the *hawārī* and other vessels are being abandoned, and few remain in use. With increasing economic development on Socotra, abandoned wooden vessels are being used to fuel lime kilns. Thankfully, with the opening of a craft museum on Socotra and the actions of several individuals, a few *hawārī* have been saved.

2. The vessels

The survey encountered a range of double-ended and transom-sterned vessels. The larger “dhows” varied in length from 16–24 m and in width from 3–7 m. All had motors, either inboard or outboard. Planks were fastened with cleated nails to crook timbers, and floor timbers were bolted to the keel.

Three main dhow-types were recognized during our survey. These included double-ended boats of different shape, powered by inboard motors, and sometimes with an extant mast or mast step. These were generically referred to as *sanābīk* (sg. *sanbūk*),⁴ although specific hull shapes attracted more precise names, such as ʿobrī, zārūk, and zāʿīmah. The general shape and structure of these hulls was quite similar from type to type, the main difference being in the bow and stern profiles, and overall hull size.

⁴ Or *sanābīq* (sg. *sanbūq*): final “k”, a voiceless velar stop, and “q”, a uvular occlusive, are often interchangeable.



FIGURE 7. A “large hūrī” at al-Khawkhah (MARES/J.P. Cooper).



FIGURE 8. A galbah/jalbah at Fuqum, Little Aden (MARES/J.P. Cooper).

‘Obrī

The ‘obrī is a double-ended vessel with an inboard motor, characterized by a straight, raking prow and a stem-post that terminates at or slightly above the sheer line. The largest recorded was at Dakkat al-Ghaz: it was 22.8 m long, 5.8 m wide, and 2.6 m high amidships (Fig. 5).

Zārūk

Another double-ended vessel, the zārūk, is characterized by straight but foreshortened stern- and stem-posts, which end approximately two-thirds of the way up the bow (Fig. 5). A zārūk observed at Ghurayrah was the largest vessel of any the team surveyed. It was 24 m long and 6.2 m wide. One informant said the zārūk had a typical capacity of 300 tons.⁵

Zā‘īmah

The term zā‘īmah refers to a double-ended vessel with inboard motor, characterized by a curving bow profile. Informants who used this term or sketched this type were



FIGURE 9. A fiberglass galbah under construction at al-Salīf. The hull form retains that of the wooden ‘obrī (MARES/J.P. Cooper).

interviewed in locations where the zā‘īmah no longer existed. However, vessels matching their description were recorded at Ghurayrah (Fig. 5). A former builder of zā‘īyim living at Fuqum said the zā‘īmah had a capacity of up to 500 tons and a keel length of 15–24 m.⁶

Bōt

Two examples of the bōt were observed, in Aden and Ḥudaydah. These were transom-sterned vessels with a box-like cross-section and blunt bow profile, having an inboard motor (Fig. 6). Informants unanimously identified this vessel as “not Yemeni”, and variously attributed its origins to Oman or India. The MARES team subsequently observed similar craft in use in Djibouti.

⁵ Abdo ‘Umar Bulghaith, interviewed 10 February 2009.

⁶ Muhammad ‘Alī Najjār, a boatbuilder, interviewed 10 February 2009.



FIGURE 10. A ramas at al-Khawkhah (MARES/C. Zazzaro).

The “large *hūrī*”

The most common of the larger vessels of the Yemeni Red Sea coast, the “large *hūrī*” is transom-sterned and powered by two outboard motors, or occasionally one (Fig. 7). While its bow is almost identical to that of an *‘obrī*, it is distinguished by having two sweeping “fins” at its stern quarters, these being a continuation of the hull planking. The opening above the low transom and between the fins was used to pay out and gather in seine nets. The type varies in length from 14 to 20 m and in width from 2.5 to 4.5 m. The term “large *hūrī*” was used by the team to distinguish it from the various forms of smaller fishing canoes that were also called *hūrī*.⁷ Interviewees referred to it simply as a *hūrī*, unless likewise distinguishing it.

Transom “*sanbūk*”

A large dhow was recorded at Ghurayrah that was similar in its hull shape to the *‘obrī*, except that it had a transom stern. The vessel measured 23.5 m in length and was 7.1 m wide. We tentatively associate this type of boat with the description of a *sā‘īyah* that informants outlined elsewhere, but the identification is by no means certain.

*Galbah*⁸

In the Aden area, the *galbah* was a plank fishing vessel around 11 m in length, characterized by small transom

stern and an outboard motor (Fig. 8). In the Red Sea, however, the term applied exclusively to fibreglass vessels of various forms (Fig. 9).

Ramas

The *ramas* is a small punted log-raft made with logs lashed together and onto two cross-timbers with rope (today synthetic). Although most were abandoned, some were still being used for inshore fishing (Fig. 10).

3. Boatbuilding

Although the survey did not record boatbuilding in progress, ethnographic interview, the presence of numerous abandoned boatyards, and a large number of unfinished *hawārī* and *‘abārī* enabled the construction sequence of these craft to be established. Indeed, the survey encountered remarkable variations in the approach to building wooden vessels, even within the same boatyard. In one boatyard at al-Khawkhah, the team found the construction of *‘abārī* followed a sequence familiar to vessels in other areas of the Red Sea. The first piece to be laid is the keel, followed by stem- and sternpost timbers and the *samakah* timber through which the propeller shaft is fitted. The hull shape is then established by building up futtocks and planks in parallel, i.e. the approach is neither shell- first nor frame-first, but a mixed method.⁹ In contrast, yet in the same boatyard, the “large *hūrī*” was built in a quite different sequence, in that the keel and stem- and sternposts are added at the very end of the hull construction sequence. Having built the hull up from its garboard strakes, including all planks and framing timbers, the builders roll the hull to one side, and affix the prepared keel by bolting it to the floor timbers.

Within the same vessel type, the team noted variations in the construction sequence between locations. In al-Khawkhah, the planking of the large *hūrī* was applied in an upward direction, starting with the garboard strake (see also Prados 1998a: 199–201). However, in al-Salīf builders of the *hūrī* preferred to attach the sheer strakes immediately after the garboard strakes and initial shape-giving futtocks.¹⁰ The intermediate strakes and framing timbers were added afterwards. Even though the outcomes

⁷ The 2007 Southampton University survey had focused on recording these smaller *hawārī* — either dugout or plank-built vessels. The MARES survey retained a complimentary focus on other types of boat, most of which were larger.

⁸ Alternatively, the initial voiced velar stop /g/ is pronounced as the voiced alveolar affricate /j/.

⁹ For a definition of the mixed construction technique see McGrail (2004: 7–9) and Pomey & Rieth (2005: 33–34). In maritime archaeology the discussion of the sequences of boat construction and preconception methods was first introduced by Olof Hasslöf (1963) and Lucien Bash (1972), both using ethnographical and archaeological data.

¹⁰ See also boatbuilding methods recorded by Prados at Luḥayyah (1998a: 201–205).

are entirely similar, the variation in approach at different yards on the same coast perhaps reflects concomitant variations in the paths of transmission of the underlying boatbuilding skills.

Linguistic enquiry

The survey identified a range of names applied to different Yemeni vessel types. Of these, *sanbūk* is today applied quite generically, covering the vessels also known as *zawārīk*, *za'āyim*, and *‘abārī*: none of these vessels resemble the large transom-ended, curved-prow *sanābīk* that plied Yemeni waters during British rule in the south (Howarth 1977: 36), which are no longer found, nor do they resemble the *sanābīq* of the Gulf or Oman (Howarth 1977: 36; Agius 2005: 18). Even more generically applied was the term *hūrī*, historically referring to dugout fishing canoes, but today referring to fibreglass vessels, and also to the “large *hūrī*” discussed above. Linguistic informants also provided other names for vessel types that no longer exist in Yemen. These names, and their historical usage, are discussed below. Of course vessels referred to historically are unlikely to correlate in precise form to modern vessels given the same name.

Sanbūq (pl. *sanābīq*)

The word *sanbūq* (in Yemen, also *sanbūk* (pl. *sanābīk*)) has been applied to a diverse set of vessels in a wide variety of Western Indian Ocean locations for almost a millennium. It has been commonly known over the centuries, with cognates in Mehri, Ḥaḍramī, and Amharic (de Landberg 1920–1942, iii: 1985–1986, n. 1; Glidden 1942: 71). It is also found in Greek *sambūke* (σάμβουκε), which seemingly came about because of the Greek presence in Egypt and the Red Sea before the Christian era. An attempt has also been made to derive the word from Persian, through Middle Persian **sambūk* (al-Jawālīqī 1969: 177–179; Tabrīzī 1982, ii: 1170; Glidden 1942: 71; Agius 2002: 85–86). This is possible, but there is a greater possibility that the nomenclature derives from Sanskrit *ṣambuka*, and there may also be links with Malay *sampan* (Kindermann 1934: 43) or Chinese *sanpan* (Yajima 1976: 24).

The earliest mention of *sanbūq* in Arabic sources comes from the mariners’ tales recounted by the captain, Buzurg b. Shahriyār (d. 1009), who reports a cargo *sanbūq* sailing to China (al-Rāmhurmuzī 1883–1886: 190). The Moroccan traveller, Ibn Baṭṭūṭah (1368–1389 or 1377) speaks of a *sanbūq* functioning as a coastal ferry

(1968, ii: 17, 181, 183, 198, 251). The Egyptian historian, al-Maqrīzī (1441–1442), mentions the name in the context of a war fleet in the Red Sea during the Ṭulūnid period (868–884) (1853, ii: 180). We also find the name in sixteenth-century Portuguese sources: Afonso de Albuquerque (d. 1515), Duarte Barbosa (d. 1521) (1918–1921, i: 7, 9), and Vasco da Gama (d. 1524) (1869: 75–76, 79, 80, 109) often mention the *sambucho* or *zambuco*.¹¹ De Albuquerque notes that Portuguese caravels “were guided by small or large vessels called *sanbūq[s]*.” He also remarks that they were undecked, and describes them moreover as “having no nails” (1875–1884, iv: 206), a probable reference to the former Indian Ocean practice of stitching hull planks (Agius 2008: 161–167). In the same period, the Italian Ludovico di Varthema, who lived in Yemen for some time, reports a type of “flat-bottomed” *sanbūq* (1863: 154).

In the nineteenth century, Karl Klunzinger (d. 1861), classifies the *sanbūq* as the most common Red Sea type (2000: 295), while Richard Burton (d. 1890) sailed on a two-masted, 50-ton pilgrim *sanbūq* from Suez to Jeddah, which carried ninety-seven pilgrims (1964, i: 188).

‘Obrī (pl. *‘abārī* or *‘obriyyāt*)

The name *‘obrī* comes from Arabic *‘abara* “to cross over (the sea)”, by extension a boat which journeys from one point to another (Lane 1984, ii: 1936). Given the meaning, one would expect to find a boat term in classical Arabic sources related to this verb-root but none has been found (Agius 2002: 46–47). Hunter (1877: 83) mentions an *‘abra*, which he says is a small boat of 5 to 15 tons from al-Mukalla. More recently, Hawkins uses *‘abra* generically to refer to “all manner of small craft which can be anything from decrepit all-purpose boats in Aden to the sleek ferries of Dubai Creek” (1977: 81). Moore (1925: 123) is a little more specific: he says an *‘abra* had a lowered bow and elevated stern, while Serjeant (1974: 134) speaks of a Mehri *‘abriyya sambūk*, which might or might not be similar to the *‘obrī* encountered during the MARES fieldwork.

Zārūk (pl. *zarārīk* or *zārūkāt*)

In classical Arabic, the verb-root *zariqa* carries the meaning of “piercing with a spear” and *zariqah* is the word for “spear”; by extension this root gave the word *zawraq* “a skiff; a small boat” (Lane 1984, i: 1227–1228)

¹¹ For reports on the *sanbūq* from the Ḥaḍramī chronicles, see Serjeant 1974: 58, 69; see also Agius 2008: 141–170.

with the meaning of light and fast; it is mentioned by Ibn Jubayr (*d.* 1217) (1952: 64). The Yemeni term *zārūk* seems to be related to this. At the turn of the twentieth century, de Monfreid (*d.* 1976) often speaks of *zarārīk* in the southern Red Sea (1934: 14, 106, 220); he gives the impression that it was the most common vessel of his times, but this could be a generic term for various boat types.

***Zaʿīmah* (pl. *zaʿāyim*)**

The name seems to be associated with one of the meanings of the verb-root *zaʿama* “(the camel that) conveys (someone to a desired place)”; hence *zaʿīmah* is the “conveyor” with reference to the laden camel (Lane 1984, i: 1232). That would perhaps explain the Yemeni application of the name to a type of cargo boat.

Our informants sketched a double-ended vessel with a curved bow profile and spoke of its large size — descriptions which correspond to a drawing by Hawkins (1977: 79). The MARES team identified an abandoned vessel at Ghurayrah as such.

***Sāʿiyah* (pl. *sāʿiyāt*)**

Informants in Yemen referred to a type of large transom-sterned vessel of this name, but the MARES team identified no such actual vessel with certainty.¹² The name may have come from the verb-root *saʿā* meaning “to go along with vigorousness” and the word *sāʿi* signifies “a messenger that journeys with haste”, which would fit well with the nomenclature *sāʿiyah* (Lane 1984, i: 1367). Yemenis have adopted the feminine usage, as several names of vessels in Arabic do. Johann Ludwig Burckhardt (*d.* 1829) describes a *sāʿiyah* as the smallest type of dhow “only nine feet [2.7 m] across the beam” (1822: 8–9).

***Jalbah* or *Galbah* (pl. *jilab/gilab* or *jalbāt/galbāt*)**

The name *jalbah* does not occur in classical and medieval lexica. From the verb-root *jalaba* we have “to transport things, such as camels, sheep ... slaves or any merchandise” (Lane 1984, i: 438, 440); hence, it might be said that the ship that carried them was called *jalbah*. The *jalbah* was a well-known Red Sea vessel; it is first mentioned by Buzurg ibn Shahriyār (*d.* 1009) with reference to a journey from Oman to Jeddah (al-Rāmhumuzī 1883–1886: 93–94). Cargo *jilab* were used to trade goods from Egypt to Aden and return, according

to the Genizah letters (tenth–thirteenth centuries) (Agius 2008: 116–117). Ibn Jubayr says that a *jalbah* was a pilgrim-cargo boat with sewn planks (1952: 63). Some were large enough to carry camels from Jeddah to Yemen, says Ibn Baṭṭūṭah (1968, i: 158). Portuguese diaries report a type that was a small sailing or rowing vessel used on the southern Red Sea coast. In the greater Aden area, *galbah* is a term applied to a relatively small transom-ended wooden fishing boat (*c.* 11 m). However, on the Red Sea coast the term was invariably used to refer to fibreglass vessels, whatever their form.

***Hūrī* (pl. *hawārī*)**

The origin of the name *hūrī* stems from Hindi *hōrī* and ultimately from Sanskrit *hoḍa* (Agius 2002: 119–121; 2008: 123, n. 73). Other than the dugout “canoe” this is perhaps the most familiar vessel of that name and the term also applies to a wide range of small plank-built fishing vessels found in every place we surveyed. In many locations it is also applied to the type of fibreglass fishing vessels mainly manufactured in the Ḥaḍramawt area, and found throughout Yemen. The name is also applied to the much bigger “large *hūrī*” described above.

***Ramas* (pl. *ramasāt*)**

Ramas is a name of Demotic origin (from the root r.m.s.) (Agius 2008: 122). It appears in Hieratic, and is also a cognate term with Somali *ramsī* and its variant, Ethiopic. It has survived in the Red Sea, the Horn of Africa, and the Ḥaḍramawt area. The classical Arabic term is *ramath*.

The earliest mention of the term in classical Arabic sources is a verse from a pre-Islamic ode of Abū Ṣakhr al-Hudhalī (second half of the seventh century AD) (Montgomery 1997: 195); also found in a Ḥadīth, sometime after the seventh century; the Andalusian lexicographer Ibn Sīda (1007–1066) sets a definition of *ramath*, describing it at some length. We have then no sources mentioning this name until the nineteenth century: Burckhardt sailed in Nubia on a *rāmūs* “a small raft of reeds”, though elsewhere he described it as constructed of four trunks of date-trees, worked by a paddle 4 feet long (1.2 m) (Agius 2002: 128–130; 2008: 120–121). Barrett Miles (1994: 414) reports that in the early twentieth century he saw Socotrans sailing from the island to Muscat on a *ramas* made of “three logs about six feet [1.82 m] long, the central one being the longest”. Moore (1925: 138) came across a three- to four-log *ramas* in Massawa, Eritrea.

¹² Prados (1998b: fig. 3) identified such a vessel preserved as a monument in al-Ḥamī (Ḥaḍramawt).

Conclusion

As recently as 1996, Prados was able to write that, "...wooden boatbuilding continues to thrive in Yemen." (1996: 50). The situation has changed radically in the intervening time. The MARES fieldwork suggests that the building of new wooden dhows in Yemen may now have ceased, and that the only work currently conducted in traditional boatyards is repair work on existing vessels. Reports from the Ḥaḍramawt and Maḥra, to which this survey did not extend, suggest that this was the first area of Yemen to start the transition to fibreglass boatbuilding, and hence there are few vestiges of the wooden tradition. The area north of al-Salīf remains an unknown quantity. Prados noted boatbuilding activity at al-Luḥayyah and al-Khawbah in the mid-90s (1996: 51; 1998a: 199–206), and local informants told us that wooden vessels continue to be used at Mayḍī. Future research along this coast north of al-Salīf is therefore warranted.

Oral accounts obtained from Yemenis in Aden and on the Red Sea relate that fibreglass boatbuilding in Yemen took off in the aftermath of the 1990 Iraqi invasion of Kuwait, when over a million resident Yemenis were expelled from member states of the Gulf Co-operation Council. Many of these Yemenis were Ḥaḍramīs, some of whom returned to their home province and invested their savings in establishing fibreglass boatyards. Fibreglass fishing "canoes" throughout Yemen, and also in Djibouti, carry makers' marks from Ḥaḍramī yards. Fibreglass boatyards are now to be found in the major Red Sea fishing centres of al-Khawkhah and al-Salīf, and fibreglass boats have been observed carrying the name of a builder in Mocha.

The uptake of fibreglass boats in Yemen appears to be the product of raw economics. Fibreglass boats are robust, require less maintenance (and associated downtime), and can be repaired by unskilled hands using low-cost materials at a time when skilled workers are disappearing. Fishermen say that fibreglass boats are uncomfortable compared to wooden fishing vessels, but they travel faster and therefore further, allowing more distant fishing grounds to be reached at a time of falling fish stocks and rapid population growth.

It appears that Yemenis are witnessing the end of the practices of wooden boatbuilding, and the maritime traditions associated with it. In the Arabian-Persian Gulf and Oman, the wealth of the state and of individuals has enabled the preservation of some traditional vessels, either in museums or as hobby craft, and the archiving of documentary information on maritime activity in research centres. However, Yemen's relative poverty means that none of the surviving wooden dhows are likely to be preserved in a cultural-heritage context, a fact that argues for assiduous recording of these vessel types and their associated oral and craft traditions before they are lost entirely.

Acknowledgements

This research was conducted as part of the MARES Project, a three-year programme investigating the maritime past and heritage of the Red Sea and Arabian-Persian Gulf. MARES is based at the Institute of Arab and Islamic Studies at the University of Exeter (<http://projects.exeter.ac.uk/mares>). The programme is funded by the Golden Web Foundation, an educational charity registered in the UK (www.goldenweb.org), to which our gratitude is due. Thanks are also due to the Seven Pillars of Wisdom Trust, which provided additional financial support for the fieldwork. In addition, the MARES team would like to thank the following people for their assistance: Dr Abdulla M. Bawazir, President of Yemen's General Organization of Antiquities and Museums (GOAM); Dr Muhammad Taha al-Asbahi, General Director of Antiquities at GOAM; Dr Raja Batawil, head of GOAM in Aden; our GOAM-appointed field companion, Salah al-Mansuri; Mr Hasan Saleh Shihab; Emily Allardyce, Fuad Mazid al-Matairi, and their colleagues at the British Yemeni Language Institute; our driver and guide Muhammad al-Matairi; Edward Prados, Director of Amideast; Chris Evens; the British Council; and the British Embassy. Last but not least, the team wishes to thank the many individual informants along Yemen's coast who gave their assistance to its research.

References

- Agius D.A.
 2002. *In the Wake of the Dhow: The Arabian Gulf and Oman*. Reading: Ithaca.
 2005. *Seafaring in the Arabian Gulf and Oman*. London/New York: Kegan Paul.
 2008. *Classic Ships of Islam: From Mesopotamia to the Indian Ocean*. Leiden: E.J. Brill.
- Awadh Ali N.A., Jülich W.D., Kusnick C. & Lindequist U.
 2001. Screening of Yemeni medicinal plants for antibacterial and cytotoxic activities. *Journal of Ethnopharmacology* 74/2: 173–179.
- Barbosa D./trans. M.L. Dames.
 1918–1921. *The Book of Duarte Barbosa*. (2 volumes). London: The Hakluyt Society.
- Basch L.
 1972. Ancient wrecks and the archaeology of ships. *The International Journal of Nautical Archaeology and Underwater Exploration* 1: 1–58.
- Bilaidi A.S.
 1978. *Silviculture in the People's Democratic Republic of Yemen*. 10 March 2009. Rome: Food and Agriculture Organisation. www.fao.org/docrep/12680e/12680e05.htm
- Burckhardt J.L.
 1822. *Travels in Nubia*. London: J. Murray.
- Burton R.
 1964. *Personal Narrative of a Pilgrimage to Al-Madinah and Meccah*. (ed. I. Burton). (2 volumes). New York: Dover. [First published 1893].
- da Gama V./trans. H.E.J. Stanley
 1869. *Three Voyages of Vasco da Gama and his Viceroyalty. From the Lendas da India of Gaspar Correa*. London: The Hakluyt Society.
- de Albuquerque A./trans. W. De Gray Birch.
 1875–1884. *The Commentaries of the Great Afonso Dalboquerque*. (4 volumes). London: The Hakluyt Society.
- di Varthema L./trans. J.W. Jones & ed. G.P. Badger.
 1863. *The Travels of Ludovico di Varthema*. London: The Hakluyt Society.
- Glidden H.W.
 1942. A comparative study of the Arabic nautical vocabulary from al-ʿAqabah, Transjordan. *Journal of the American Oriental Society* 62: 68–72.
- Hasslöf O.
 1963. Wrecks, Archives and Living Traditions. *The Mariner's Mirror* 49/3: 162–177.
- Hawkins C.W.
 1977. *The Dhow*. Lymington: Nautical Publishing/London: George G. Harrap.
- Howarth D.
 1977. *Dhows*. London: Quartet Books.
- Hunter F.M.
 1877. *An Account of the British Settlement at Aden, in Arabia*. London: Trübner.
- Ibn Battūṭah, Abū ʿAbdallāh Muḥammad/trans. C. Derfrémery & B.R. Sanguinetti.
 1968. *Voyages d'Ibn Battûta, Arabic text with translation*. (4 volumes). Paris: Anthropos. [First published 1853–1858].
- Ibn Jubayr, Abū al-Ḥasan Muḥammad/trans. R.J.C. Broadhurst.
 1952. *Rihla, The Travels of Ibn Jubayr*. London: Jonathan Cape.
- Jansen van Rensburg J.
 2005a. An Ethno-technical study of the *hawari* on Soqatra. *Tayf — the Soqatra Newsletter* 2: 17.
 2005b. Soqatra Hawari Expedition — an Ethno-Technical study of the *hawari* on Soqatra. *Bulletin of the Society of Arabian Studies* 10: 33.

2006. Hawari — Socotra's unique fishing boats. Pages 316–319 in C. Cheung, L. De Vantier & K. Van Damme (eds), *Socotra: a Natural History of the Islands and their People*. Hong Kong: Odyssey Books & Guides.
 2009. The Hawārī of Socotra, Yemen. *International Journal of Nautical Archaeology*. 5 December 2009. DOI: 10.1111/j.1095-9270.2009.00234.x
- Al-Jawālīqī, Abū Maṣṣūr Mawḥūb b. Aḥmad b. Muḥammad/ed. A.M. Shākīr.
1969. *Kitāb al-mu'arrab min al-kalām al-ʿjamī ʿalā ḥurūf al-muʿjam*. Tehran: Dār al-Kutub.
- Kindermann H.
1934. “*Schiff*” im Arabischen. *Untersuchung über Vorkommen und Bedeutung der Termini*. Bonn: Zwickau.
- Klunzinger C.B.
2000. *Upper Egypt: Its People and its Products*. London: Darf. [First published 1878].
- Landberg, Comte de
- 1920–1942. *Glossaire Daḥnī*. (3 volumes). Leiden: E.J. Brill.
- Lane E.W.
1984. *Arabic-English Lexicon*. (2 volumes). Cambridge: Islamic Texts Society Trust. [First published 1863–1893].
- McGrail S.
2004. *Boats of the World*. Oxford: Oxford University Press.
- Al-Maqrīzī, Taqī al-Dīn / ed. M.Q. al-ʿAdawī
1853. *Al-mawā ʿiẓ wa l-i ʿtibār fī dhikr al-khiṭaṭ wa l-āthār*. (2 volumes). Bulaq.
- Miles S.B.
1994. *The Countries and Tribes of the Persian Gulf*. Reading: Garnet. (2 volumes). [First published 1919; reprinted 1920].
- Monfreid H. de/trans. H.B. Bell.
1934. *Secrets of the Red Sea*. London: Faber & Faber.
- Montgomery J.E.
1997. *The Vagaries of the Qaṣīdah. The Tradition and Practice of Early Arabic Poetry*. (Gibb Literary Studies, 1). Warminster: Aris Phillips.
- Moore A.
1925. *Last Days of Mast and Sail*. Oxford: Clarendon Press.
- Pomey P. & Rieth E.
2005. *L'Archéologie navale*. Paris: Éditions Errance.
- Prados E.
1996. Traditional Fishing Craft of the Tihamah and Southwestern Arabian Coast. *The American Neptune* 56: 89–115.
 - 1998a. Wooden Boats of the Yemeni Tihamah. *Nautical Research Journal* 43/4: 195–209.
 - 1998b. Contemporary Wooden Fishing Craft of Yemen. *Yemen Update* 40. 5 December 2009. www.aiys.org/webdate/prados.html
- Al-Rāmhurmuzī, Buzurg b. Shahriyār/ed. P.A. Van der Lith & trans. L. Marcel Devic.
- 1883–1886. *Kitāb ʿajāʾib al-hind (Livre des merveilles de l'Inde)*. Leiden: E.J. Brill.
- Serjeant R.B.
1974. *The Portuguese off the South Arabian Coast*. Beirut: Librairie du Liban.
- Tabrīzī M.Ḥ.
1982. *Burhān-e qāṭeʿ*. (4 volumes). Tehran: Amīr Kabīr.
- Yajima H.
1976. *The Arab Dhow Trade in the Indian Ocean* (Studia Culturae Islamicae, 3). Tokyo: Institute for the Study of Languages and Cultures of Asia and Africa.

Authors' addresses

The MARES Project, Institute of Arab and Islamic Studies, University of Exeter, Stocker Road, Exeter, EX4 4ND, UK.

Prof Dionisius A. Agius

e-mail d.a.agius@exeter.ac.uk

John P. Cooper

e-mail j.p.cooper@exeter.ac.uk

Julian Jansen van Rensburg

e-mail jj243@exeter.ac.uk

Chiara Zazzaro

e-mail c.zazzaro@exeter.ac.uk